FIG. 1

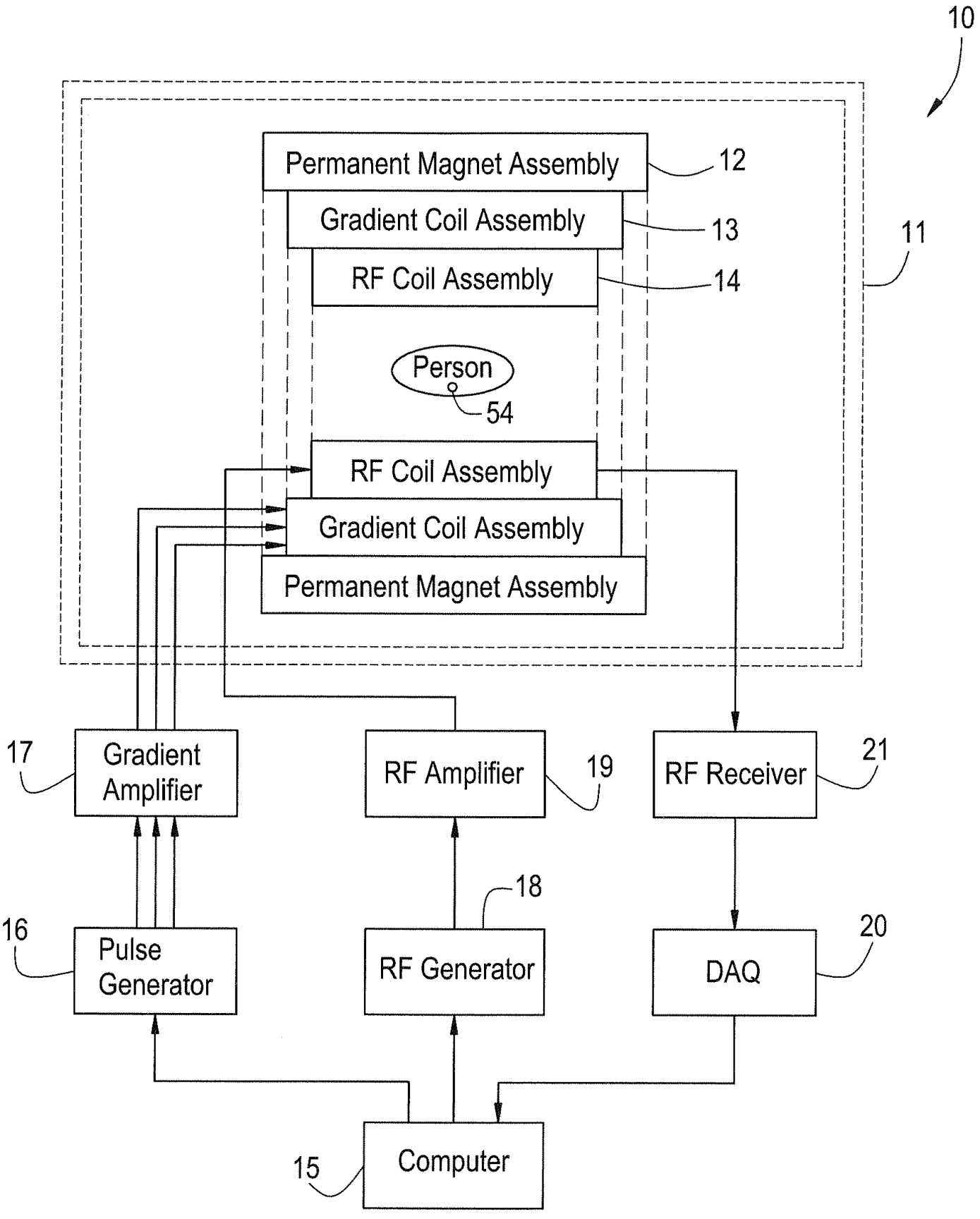

10
11
Permanent Magnet Assembly
12
Gradient Coil Assembly
13
RF Coil Assembly
14
Person
54
RF Coil Assembly
Gradient Coil Assembly
Permanent Magnet Assembly
17
Gradient Amplifier
RF Amplifier
19
RF Receiver
21
18
16
Pulse Generator
RF Generator
DAQ
20
15
Computer

FIG. 2

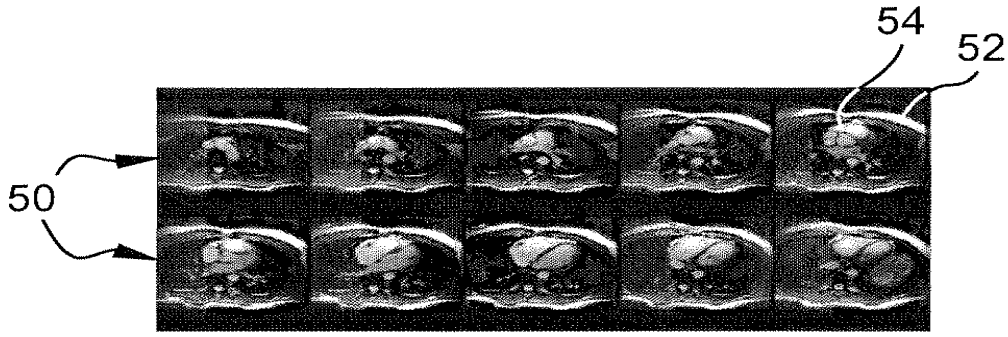



FIG. 3

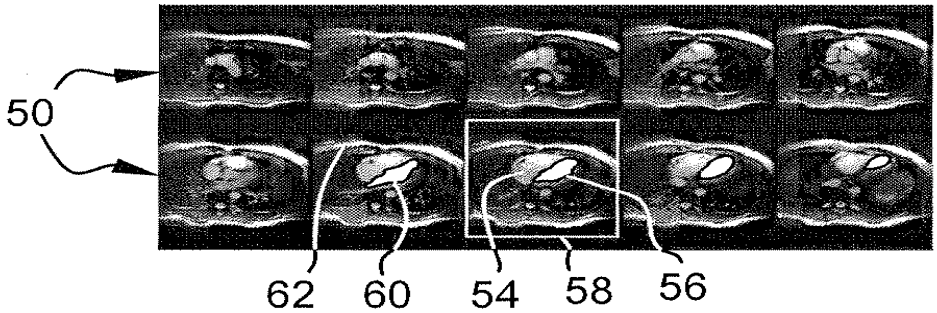



FIG. 4

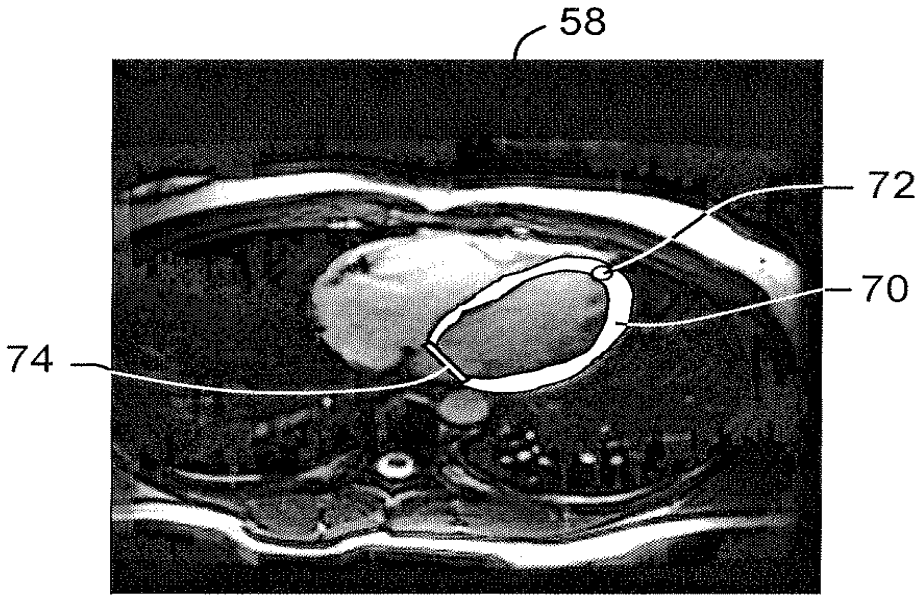


FIG. 5

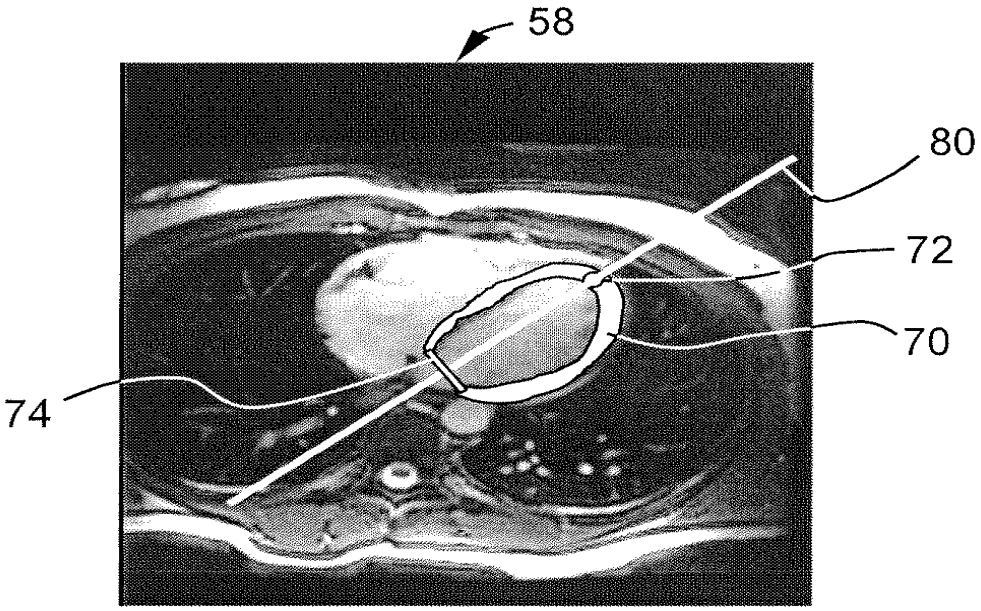



FIG. 6

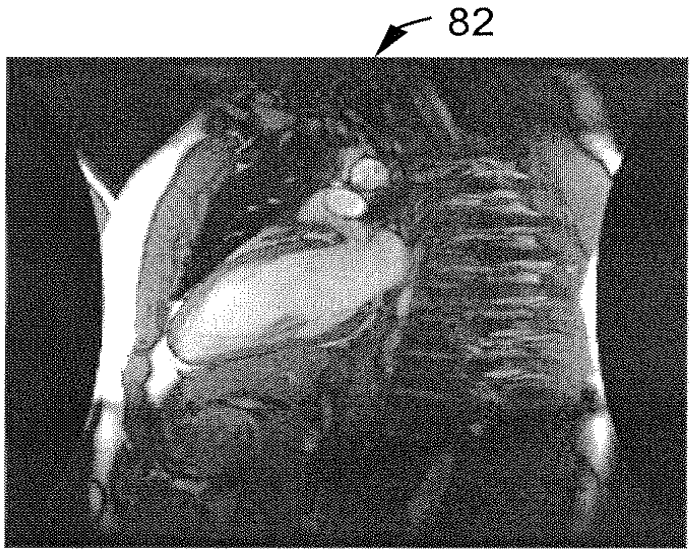



FIG. 7

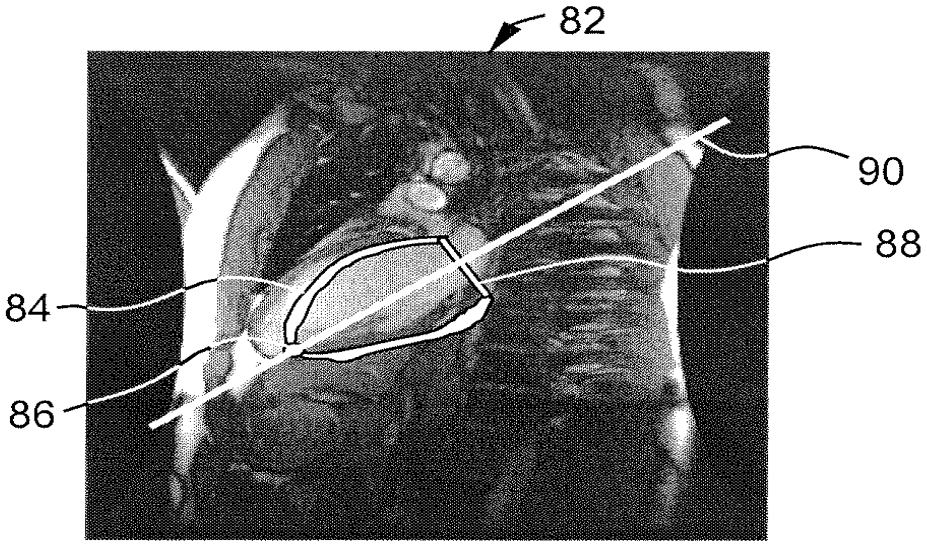


FIG. 8

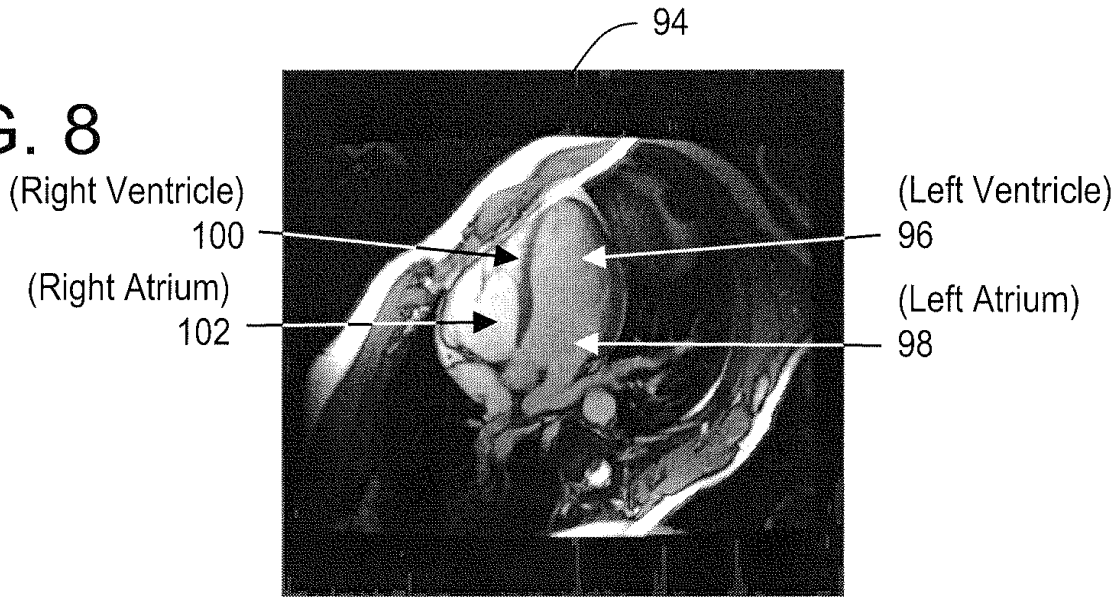



FIG. 9

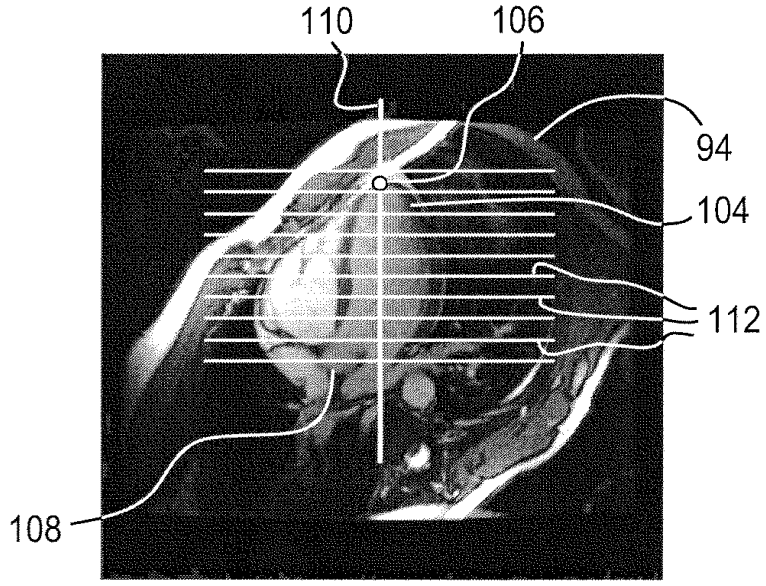



FIG. 10

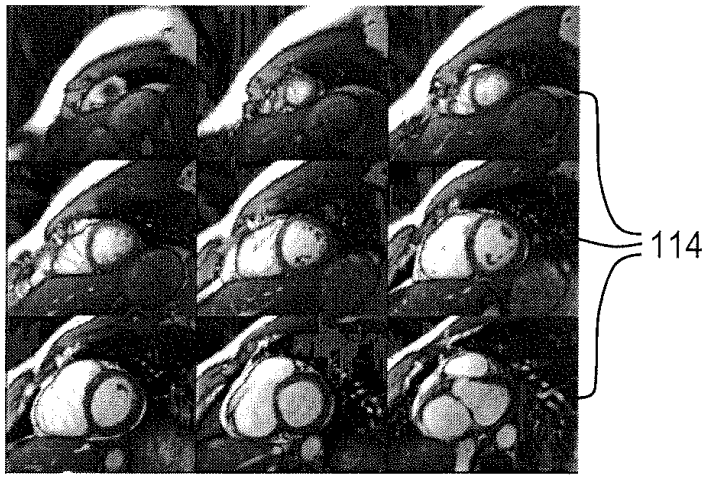


FIG. 11

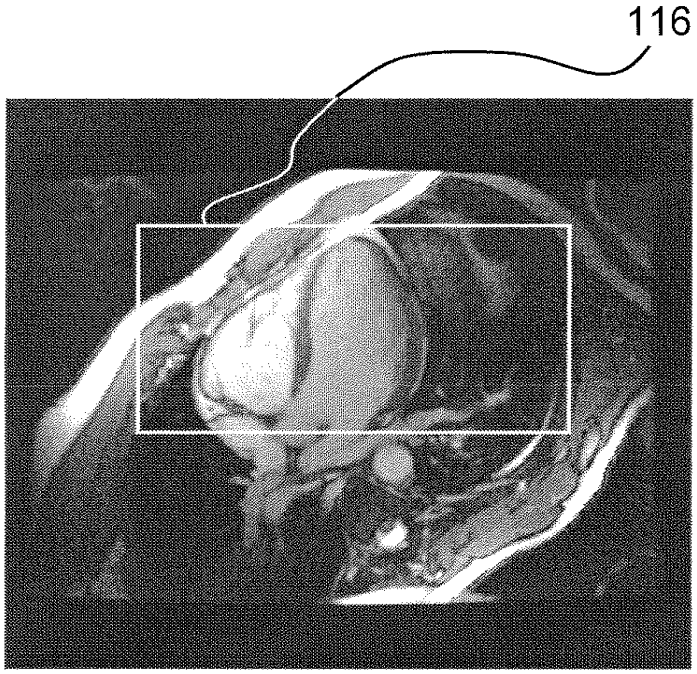
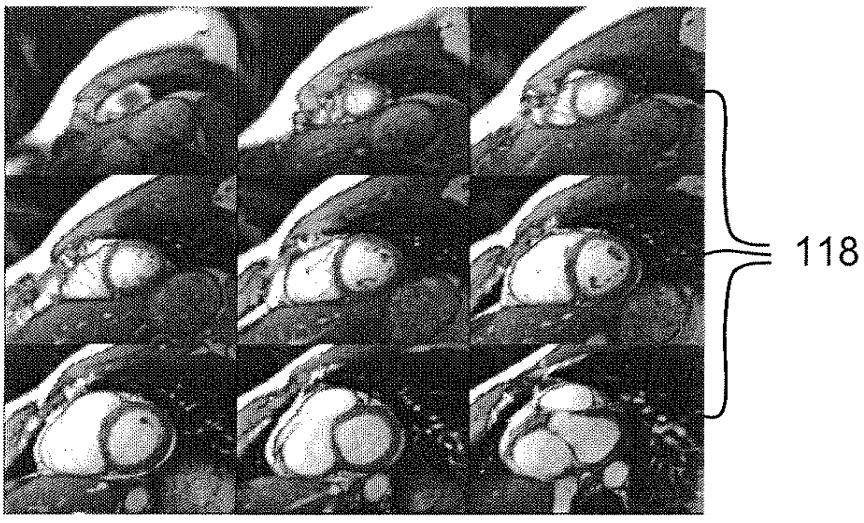



FIG. 12



# FIG. 13

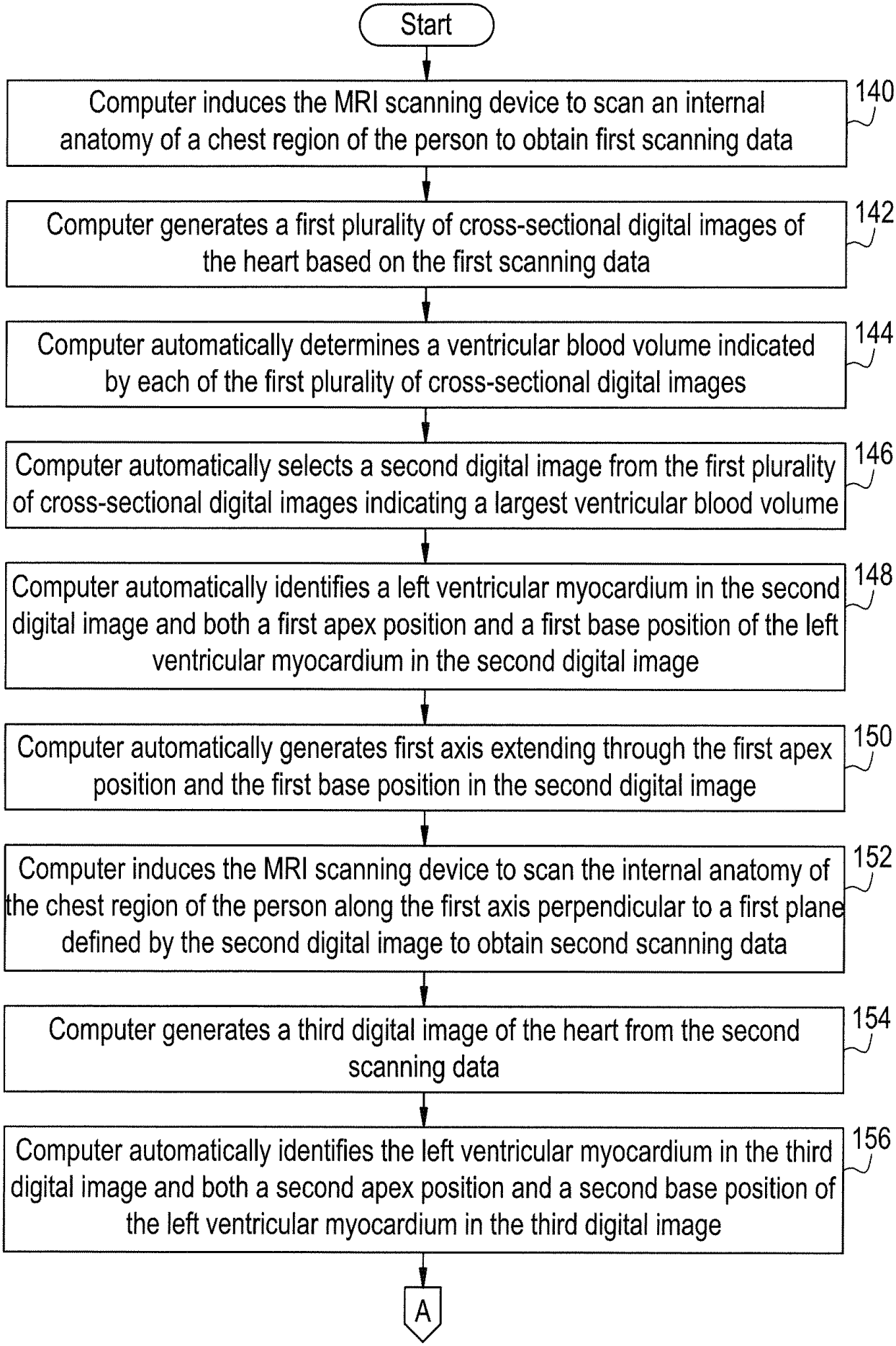

Start
Computer induces the MRI scanning device to scan an internal anatomy of a chest region of the person to obtain first scanning data
140
Computer generates a first plurality of cross-sectional digital images of the heart based on the first scanning data
142
Computer automatically determines a ventricular blood volume indicated by each of the first plurality of cross-sectional digital images
144
Computer automatically selects a second digital image from the first plurality of cross-sectional digital images indicating a largest ventricular blood volume
146
Computer automatically identifies a left ventricular myocardium in the second digital image and both a first apex position and a first base position of the left ventricular myocardium in the second digital image
148
Computer automatically generates first axis extending through the first apex position and the first base position in the second digital image
150
Computer induces the MRI scanning device to scan the internal anatomy of the chest region of the person along the first axis perpendicular to a first plane defined by the second digital image to obtain second scanning data
152
Computer generates a third digital image of the heart from the second scanning data
154
Computer automatically identifies the left ventricular myocardium in the third digital image and both a second apex position and a second base position of the left ventricular myocardium in the third digital image
156
A

FIG. 14

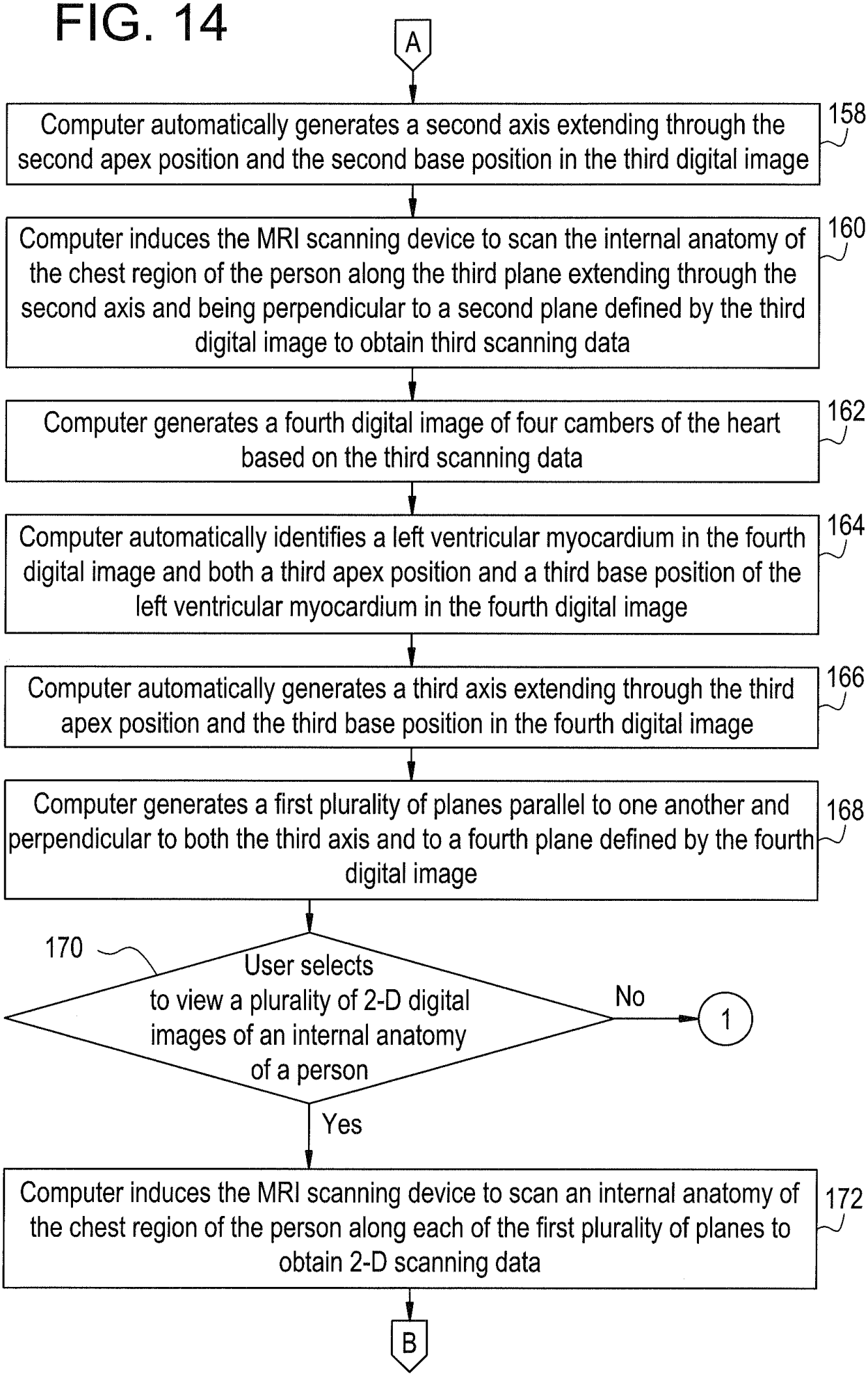
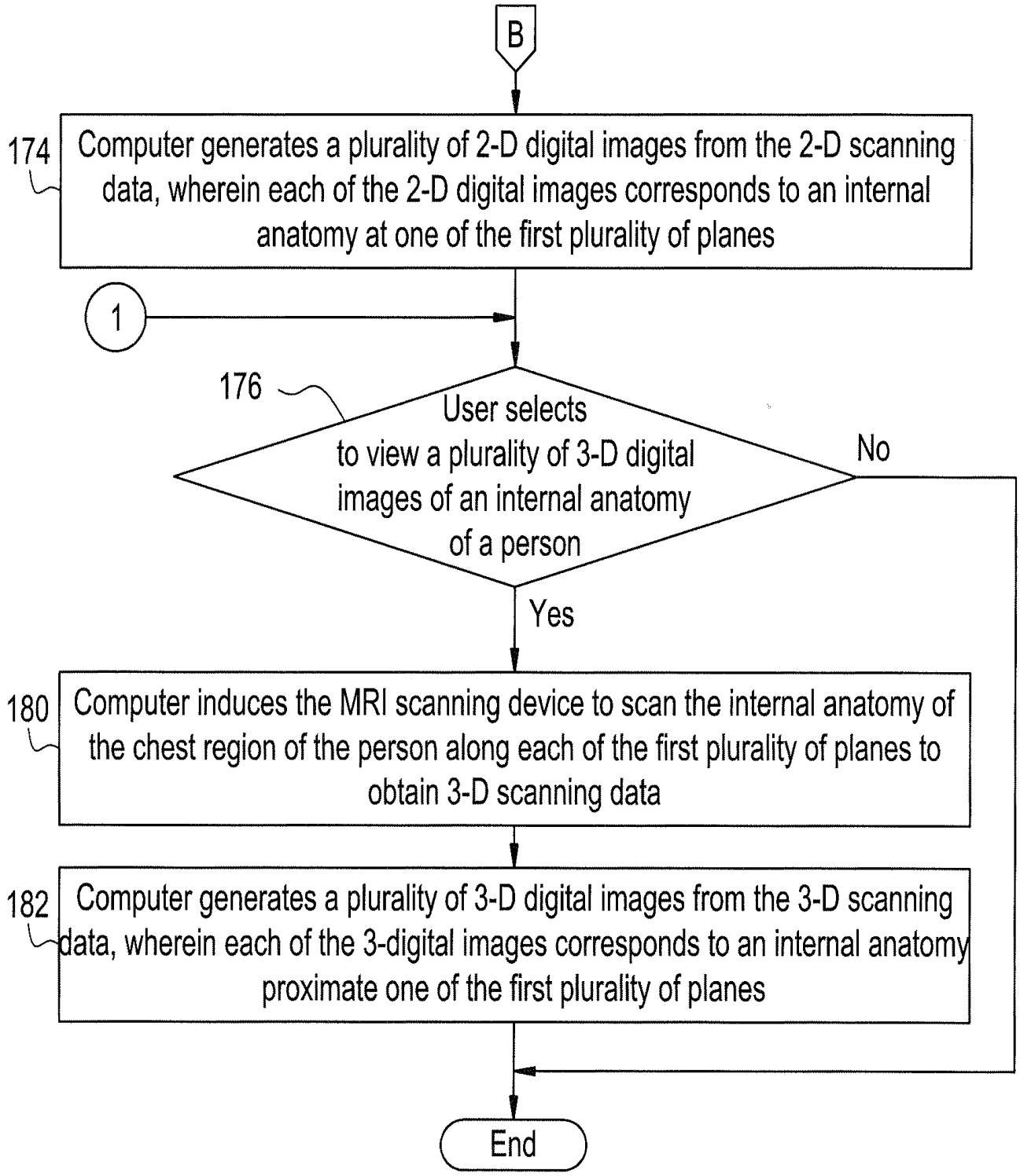

A
Computer automatically generates a second axis extending through the second apex position and the second base position in the third digital image
158
Computer induces the MRI scanning device to scan the internal anatomy of the chest region of the person along the third plane extending through the second axis and being perpendicular to a second plane defined by the third digital image to obtain third scanning data
160
Computer generates a fourth digital image of four cambers of the heart based on the third scanning data
162
Computer automatically identifies a left ventricular myocardium in the fourth digital image and both a third apex position and a third base position of the left ventricular myocardium in the fourth digital image
164
Computer automatically generates a third axis extending through the third apex position and the third base position in the fourth digital image
166
Computer generates a first plurality of planes parallel to one another and perpendicular to both the third axis and to a fourth plane defined by the fourth digital image
168
170
User selects to view a plurality of 2-D digital images of an internal anatomy of a person
No
1
Yes
Computer induces the MRI scanning device to scan an internal anatomy of the chest region of the person along each of the first plurality of planes to obtain 2-D scanning data
172
B

FIG. 15


B
174
Computer generates a plurality of 2-D digital images from the 2-D scanning data, wherein each of the 2-D digital images corresponds to an internal anatomy at one of the first plurality of planes
1
176
User selects to view a plurality of 3-D digital images of an internal anatomy of a person
No
Yes
180
Computer induces the MRI scanning device to scan the internal anatomy of the chest region of the person along each of the first plurality of planes to obtain 3-D scanning data
182
Computer generates a plurality of 3-D digital images from the 3-D scanning data, wherein each of the 3-digital images corresponds to an internal anatomy proximate one of the first plurality of planes
End